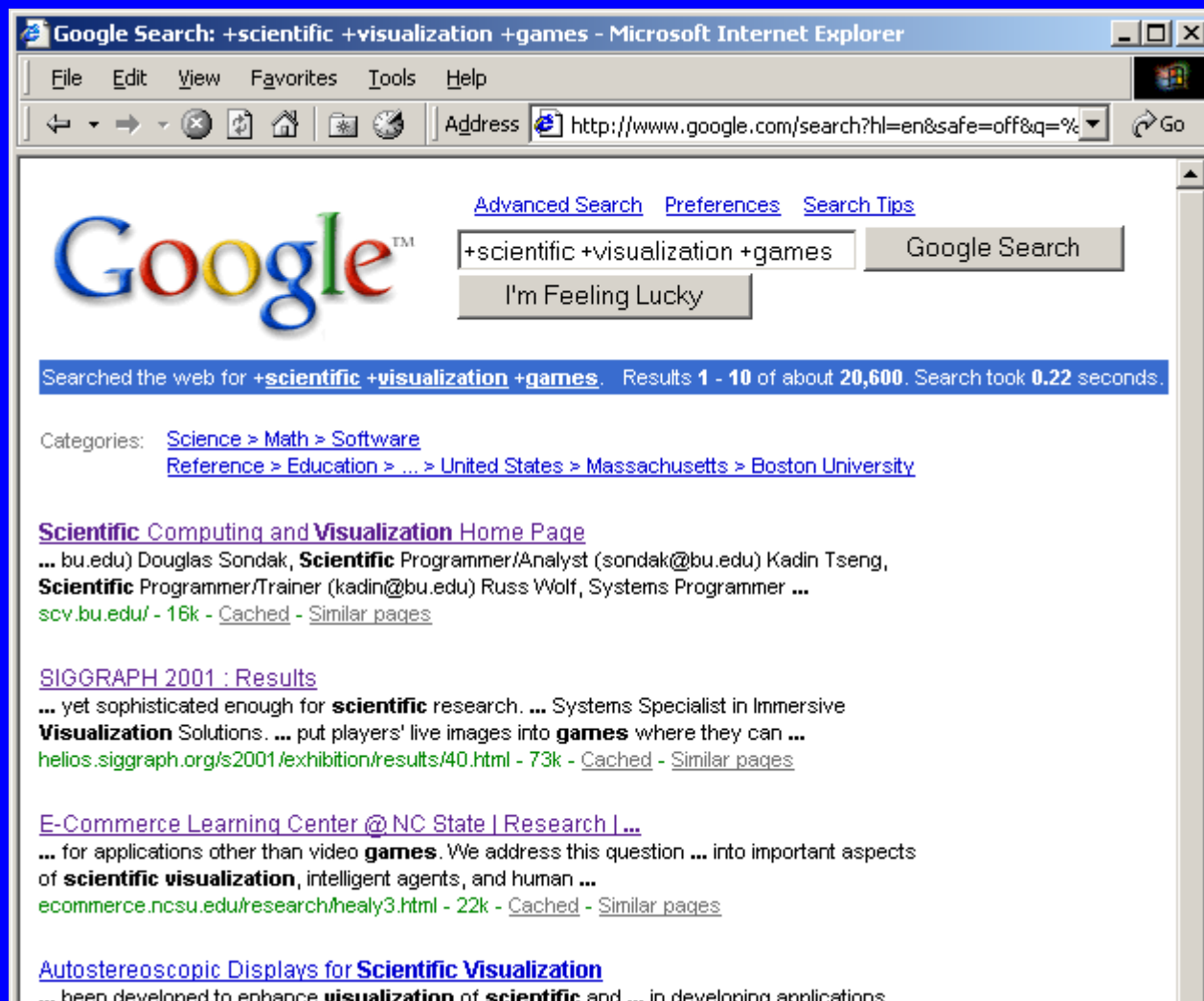


# Games and Viz

(as opposed to Viz and Games)

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definition six, inc.  
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# Is there anything out there now?



# Two Ways To Slice It

- How SciViz is affected by Games
  - The major focus of this panel
  - Briefly mention one issue
- How Games are affected by SciViz
  - in User Interfaces
    - HUDs, maps, power meters, graphs
  - during development
    - debugging, generating, testing

# SciViz versus Games

- Do game requirements differ from viz requirements, especially for 3D HW?
  - Microsoft thought/marketed this with early D3D
  - not true then, or now
- High end game developers want:
  - high precision & high dynamic range pixels & pipelines, subpixel/texel accuracy, FSAA, etc.

# Games and Viz

## User Interface

- viz, CHI, cartography, etc.
- “lots” of data to display
  - multiple dimensions of continuous/discrete data
    - strength, health, mana, units, etc.
    - equipment, location
  - overlays and HUDs
    - automap, targeting, information, etc.
  - views of data
    - occlusion, removal & transparency
    - relationships between characters

# Automap, Overlay, Health, etc.

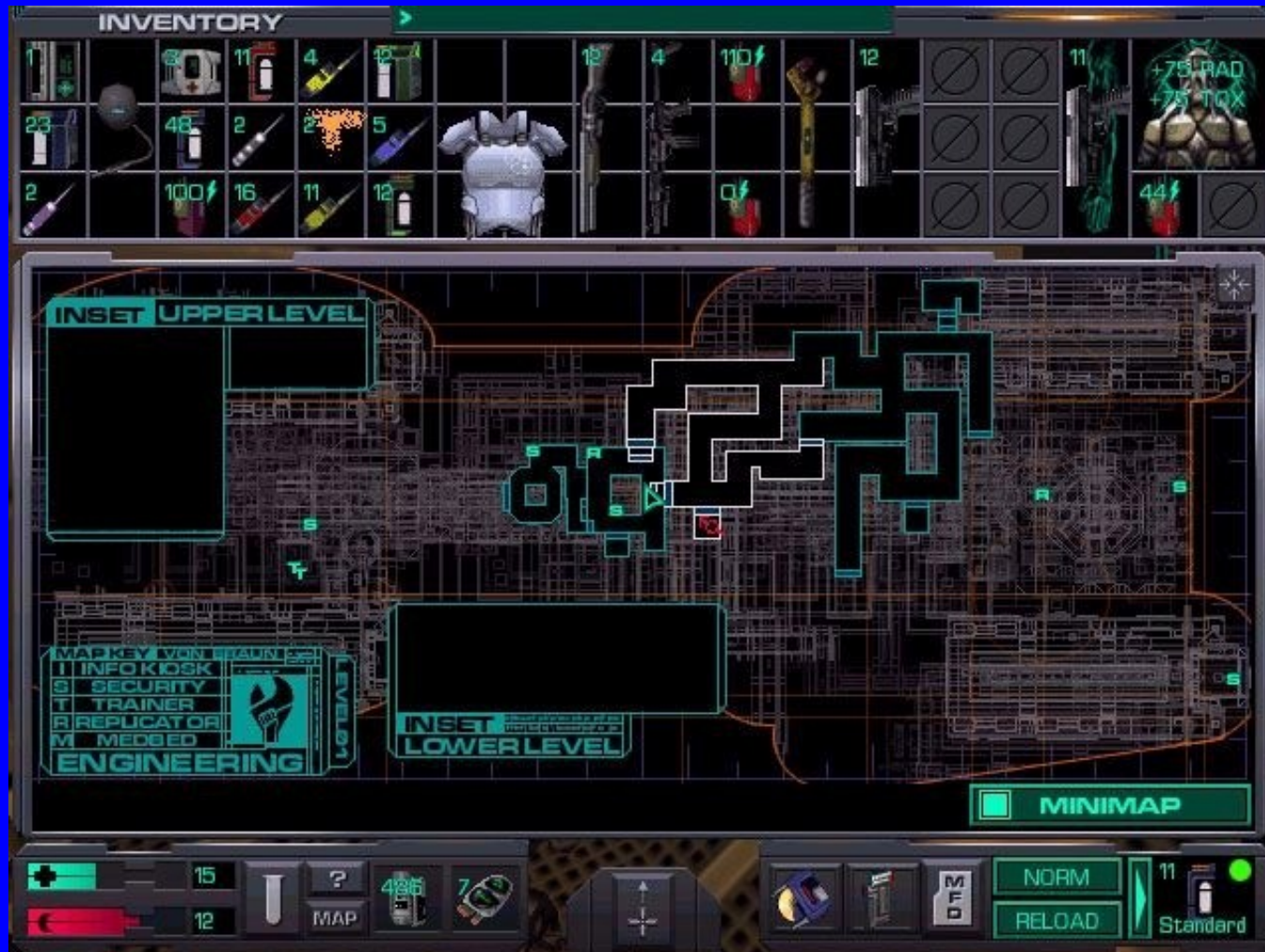


# Occlusion and Transparency





# Maps, Inventory, Stats





# Games and Viz

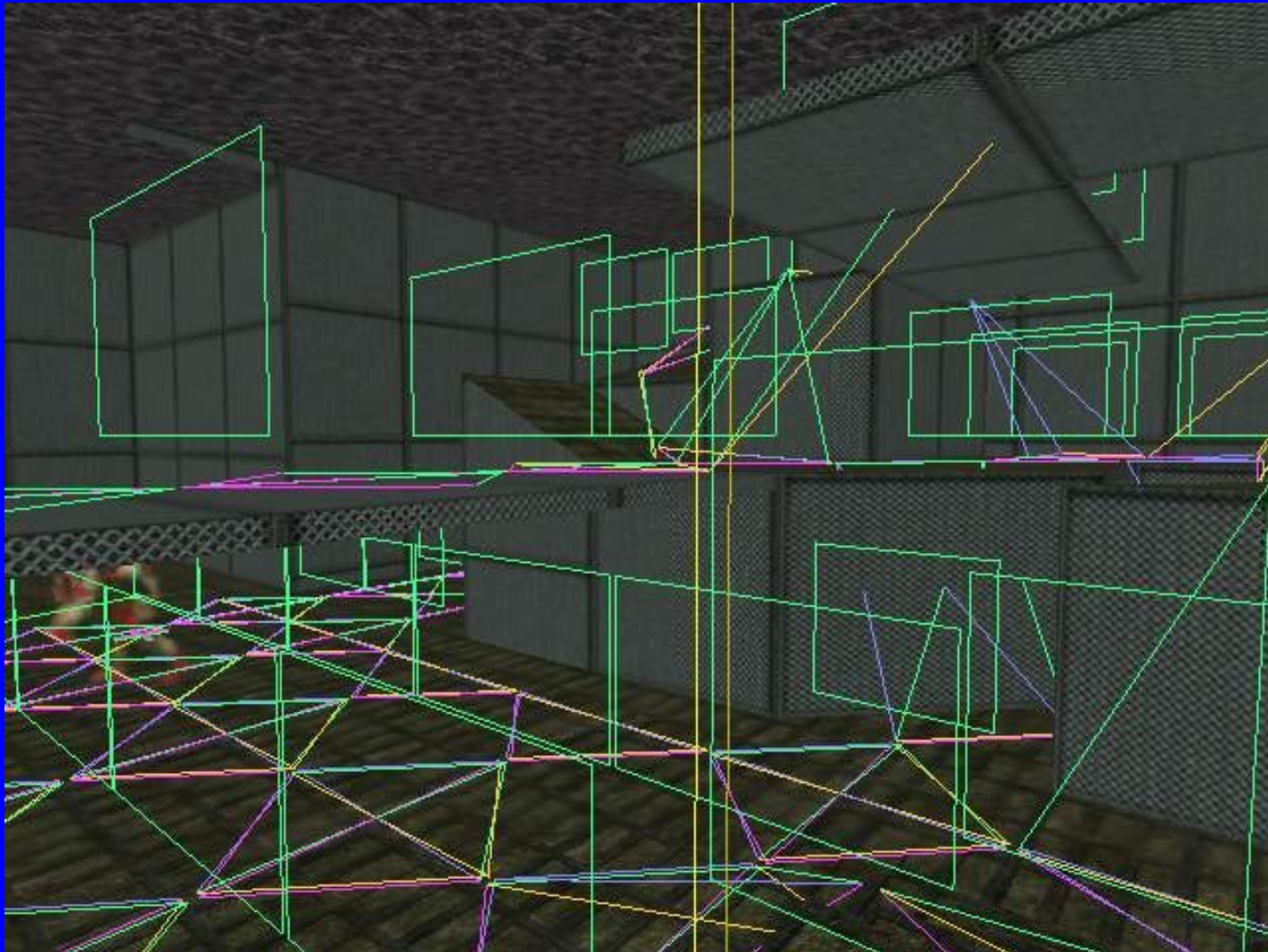
## Viz as Development Tool

- debugging, generating, testing
- mostly fumbling around, doing the obvious thing
  - drawing lines, using colors, maybe graphs
  - sometimes realtime, sometimes offline

# Debugging

```
=====
Server:BCSet@bldState( old = us_wait_for_begin, new = us_sp_ingame, time = 3.000000 )
=====
Binary Fuel Report:
=====
Dirty dirs found      = 6
TimeReading           = 0.01 seconds
TimeCondensing        = 0.00 seconds
TimeWriting           = 0.00 seconds
bytes written         = 0 bytes
files written         = 0 files
average file size     = 0 bytes/file
=====
* WORLD STATE TRANSITION: us_wait_for_begin --> us_sp_ingame
* (transition requested in file 'Pr\uss_db_tattoo\SPG\Projects\Tattoo\World\Server.opp', li
=====
* WORLD STATE TRANSITION: us_sp_ingame --> us_sp_nls
* (transition requested in file '', line 0
=====
Job request for 'party_humanoid' Soid 0xffffffffe invalid:
Job jat_brain can't run on a dead actor.  No job can.
Job request will be ignored.
Request to run Job 'jat_brain' for actor 'party_humanoid', Soid 0xffffffffe not granted.
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff646464.
Substituting stance 0 for illegal stance 1 while switching n_o_gah_fg_pos_al to chore_niso
A new quest has been added to your Quest Log.
Substituting stance 0 for illegal stance 1 while switching n_o_gah_fg_pos_al to chore_niso
=====
* WORLD STATE TRANSITION: us_sp_nls --> us_sp_ingame
* (transition requested in file '', line 0
=====
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff646464.
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff4b4b4b.
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff4b4b4b.
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff4b4b4b.
Fog base / last / new : 0xffff646464 / 0xffff646464 / 0xffff4b4b4b.
Job 'job_do_se_command.skrit' for krug_dog ( Soid 0x010005b2 ) - was asked to execute inva
Fog base / last / new : 0xffff646464 / 0xffff4b4b4b / 0xffff2a2a2a.
Query:64Distance() End pos is not in the world
Fog base / last / new : 0xffff646464 / 0xffff4b4b4b / 0xffff2a2a2a.
```

# Debugging with Graphics!



# Demos

- in-game debugging HUD graphs for time varying variables
- standalone viz app for understanding and developing math for a game



# Conclusions

- Games definitely affect Scientific Visualization
- Viz could have direct impact on games, especially on development
  - outreach from viz community with concrete improvements would be welcome
    - not much awareness of viz as relevant
    - ad hoc or general solutions? general guidelines
    - not “large” datasets by viz standards